



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,285	03/16/2004	Vijayalakshmi R. Raveendran	030065	3631
23696 7590 07/27/2007 QUALCOMM INCORPORATED 5775 MOREHOUSE DR. SAN DIEGO, CA 92121			EXAMINER RASHID, DAVID	
			ART UNIT 2624	PAPER NUMBER
			NOTIFICATION DATE 07/27/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com
kscanla@qualcomm.com
nanm@qualcomm.com

Office Action Summary	Application No. 10/802,285	Applicant(s) RAVEENDRAN ET AL.	
	Examiner David P. Rashid	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 31-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 13-15, 31-36 and 38-42 is/are rejected.
- 7) ☒ Claim(s) 4-12, 16-21, 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

All of the examiner's suggestions presented herein below have been assumed for examination purposes, unless otherwise noted.

Amendments

1. This office action is responsive to the claim and specification amendment received on 6/20/2007. **Claims 1 – 21** and **31 – 42** are pending; claims **34 – 42** are new.

Specification

2. In response to applicant's specification amendments and remarks received on 6/20/2007, the previous specification objections are withdrawn.

Claim Suggestions

3. The applicant misinterpreted the claim suggestions to be claim objections, but respectfully amended the claims accordingly. In response to applicant's claim suggestions amendments and remarks received on 6/20/2007, the previous claim suggestions are withdrawn.

Claim Rejections - 35 USC § 101

4. In response to applicant's claim amendments and remarks received on 6/20/2007, the previous claim rejection under 35 U.S.C. §101 is withdrawn.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1 – 3, 13 – 15, and 31 – 35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Thyagarajan (US 2004/0096111 A1) in view of Frishman et al. (US 2003/0044080 A1).

Regarding **claim 1**, while Thyagarajan discloses a method for processing images compressed using block based compression (“Thus, embodiments of the invention describe an apparatus and method for determining a block size assignment for a block of data representing pixels.”, paragraph [0015]), comprising:

determining whether two blocks are neighboring blocks (As shown in FIG. 2A, evaluation of block 410 requires the size and calculations of its surrounding neighborhood as disclosed “FIG. 2a illustrates an N.times.N block of pixels 400. Consider evaluation of block 410. The neighborhood size is then (2p+1).times.(2p+1) blocks. Thus, determination of the local contrast ratio for block 410 (r,c) considers the contrast in its neighboring blocks, blocks 402, 404, 406, 408, 412, 414, 416, and 418. If the block being evaluated is a corner block, such as block 402, then its neighbors comprise blocks 404, 410, and 408. For a block on the edge but not a corner, such as block 412, its neighbors comprise blocks 406, 404, 410, 416, and 418.”, paragraph [0033].);

Art Unit: 2624

determining whether the two neighboring blocks are both subdivided, if it is determined that the two blocks are neighboring blocks (FIG. 2B discloses the process to determine the local contrast ratio which includes comparing to a variance threshold to determine the sub-blocks (which in essence is whether the block is subdivided). “Once the local contrast ratio is determined, the variance threshold corresponding to the contrast ratio is determined 468. Thus, if the local contrast ratio falls within a given range, a particular variance threshold is assigned. Upon determining the variance threshold corresponding to a given contrast ratio, the block size assignment is determined 472.”, paragraph [0041]. This variance calculation to determine sub-blocks (block being subdivided) is performed on blocks with neighborhood blocks as disclosed in FIG. 2A.), Thyagarajan does not teach performing deblocking filtering on one or more edge pixels of the two neighboring blocks, after determining that both of the two neighboring blocks are not subdivided.

Frishman discloses a method for reducing blocking artifacts (FIG. 3) that teaches performing deblocking filtering on one or more edge pixels of the two neighboring blocks, after determining that both of the two neighboring blocks are not of a particular classification (“Non Blocky” or “Blocky”).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of processing images compressed using block based compression of Thyagarajan to include performing deblocking filtering on one or more edge pixels of the two neighboring blocks, after determining that both of the two neighboring blocks are not of a particular classification as taught by Frishman , and it would have been obvious to one of ordinary skill in the art at the time the invention was made for the classification of Thyagarajan

Art Unit: 2624

in view of Frishman to be “subdividing determination/classification” as already calculated by Thyagarajan as it “...provides a robust and picture-content dependent solution for removing the blocking artifact without reducing the quality or sharpness of the processed picture, and may be implemented efficiently in software and in hardware.”, Frishman, paragraph [0002].

Regarding **claim 2**, Thyagarajan discloses determining whether two neighboring blocks are both subdivided comprises:

obtaining variance values of each of the two neighboring blocks (FIG. 2A discloses the variance value calculation for block 410 as shown in FIG. 2B; however, each block in the image undergoes the same variance value calculation (using its neighborhood blocks) including neighboring blocks);

comparing the variance values to a first threshold (FIG. 2B, element 468) ; and

determining whether the two neighboring blocks are both subdivided based upon the comparison of the variance values to the first threshold (FIG. 2B, element 472; paragraph [0041]).

Regarding **claim 3**, Thyagarajan discloses determining whether two neighboring blocks are both subdivided comprises:

obtaining a block size assignment value (“Upon determining the variance threshold corresponding to a given contrast ratio, the block size assignment is determined 472.”, paragraph [0041].; and

using the block size assignment value to determine whether the two neighboring values are subdivided (“Additionally, the PQR data generated by this block size assignment is shown in

FIG. 3c.”, paragraph [0041] where PQR data generated by block size assignment can determine subdivision of each block).

Regarding **claims 13, 14, and 15**, claims 1, 2, and 3 respectively recite identical features as in the apparatus to process images compressed using block-based compression as in claims 13, 14, and 15. Thus, references/arguments equivalent to those presented above for claims 1, 2, and 3 are equally applicable to claims 13, 14, and 15.

All means plus function language of claims 13, 14, and 15 are carried out by interaction between software/hardware and a computer as disclosed in by Thyagarauan (paragraph [0062]).

Regarding **claims 31, 32, and 33**, claims 1, 3, and 2 respectively recite identical features as in the apparatus to process images compressed using block-based compression (paragraphs [0034] and [0062]) as in claims 31, 32 and 33. Thus, references/arguments equivalent to those presented above for claims 1, 3, and 2 are equally applicable to claims 31, 32, and 33.

Regarding **claim 34**, claim 1 recites identical features as in claim 34. Thus, references/arguments equivalent to those presented above for claim 1 are equally applicable to claim 34.

Regarding **claim 35**, Thyagarajan discloses wherein determining whether two neighboring blocks are subdivided comprises:

determining a size (FIG. 1, element 108) of a first block of pixels of the two neighboring blocks of pixels (FIG. 2A);

determining a block variance (FIG. 2B, element 468 is done for each block) based on pixels of the first block of pixels; and

determining that the first block of pixels is subdivided when the block variance exceeds a threshold value associated with the determined size (FIG. 2B, element 472).

Regarding **claim 38**, Thyagarajan discloses wherein determining whether two neighboring blocks of pixels from an image are subdivided comprises retrieving block size assignment information associated with a first block of pixels (FIG. 2B, element 472; paragraph [0041]), wherein the block size assignment information indicates how the first block of pixels is subdivided (FIG. 3 using PQR data method).

Regarding **claim 39**, while Thyagarajan in view of Frishman disclose the method of claim 34, and while Thyagarajan teaches further comprising:

when a first block of pixels of the two neighboring blocks of pixels is subdivided (FIG. 3A), selecting two neighboring sub-blocks of pixels (FIG. 3B wherein two neighboring sub-blocks of pixels are being “selected” to produce the PQR data of FIG. 3C); and

determining whether the two neighboring sub-blocks of pixels are both subdivided (FIG. 3B), Thyagarajan does not teach performing deblocking filtering on one or more edge pixels of the two neighboring sub-blocks of pixels, when it is determined that both of the two neighboring sub-blocks of pixels are not subdivided.

Frishman discloses a method for reducing blocking artifacts (FIG. 3) that teaches performing deblocking filtering on one or more edge pixels of the two neighboring blocks, after determining that both of the two neighboring blocks are not of a particular classification (“Non Blocky” or “Blocky”).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of processing images compressed using block based compression of

Art Unit: 2624

Thyagarajan to include performing deblocking filtering on one or more edge pixels of the two neighboring sub-blocks, after determining that both of the two neighboring sub-blocks are not of a particular classification as taught by Frishman, and it would have been obvious to one of ordinary skill in the art at the time the invention was made for the classification of Thyagarajan in view of Frishman to be “subdividing determination/classification” as already calculated by Thyagarajan as it “...provides a robust and picture-content dependent solution for removing the blocking artifact without reducing the quality or sharpness of the processed picture, and may be implemented efficiently in software and in hardware.”, Frishman, paragraph [0002].

7. **Claim 36** is rejected under 35 U.S.C. 103(a) as being unpatentable over Thyagarajan (US 2004/0096111 A1) in view of Frishman et al. (US 2003/0044080 A1), Tan et al. (US 6,188,799 B1) and Varma et al. (US 2003/0235250 A1).

Regarding **claim 36**, while Thyagarajan in view of Frishman disclose the method of claim 34, Thyagarajan in view of Frishman does not teach determining one or more difference values between one or more corresponding edge pixels of the two neighboring blocks of pixels; when one of the one or more difference values exceeds a threshold value, filtering the edge pixels using an averaging filter; and when two or more of the one or more difference values exceeds the threshold value, filtering the edge pixels using a Gaussian filter.

Tan discloses a method for removing noise in still and moving pictures (FIG. 3, element 7) that teaches

determining one or more difference values (“deviation c1 and c2” in element 55, FIG. 10 and difference value in element 54, FIG. 6 that involves difference values between one or more

Art Unit: 2624

corresponding edge pixels) between one or more corresponding edge pixels (FIG. 7) of the two neighboring blocks of pixels (“Group 1” and “Group 2” in FIG. 7);

when one of the one or more difference values exceeds a threshold value (FIG. 6, element 57), filtering the edge pixels (FIG. 6, element 58) using an averaging filter (FIG. 9); and

when two or more of the one or more difference values exceeds the threshold value (FIG. 6, elements 57, 59), filtering the edge pixels (FIG. 6, element 60) using a filter (FIG. 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of Thyagarajan in view of Frishman to include determining one or more difference values between one or more corresponding edge pixels of the two neighboring blocks of pixels; when one of the one or more difference values exceeds a threshold value, filtering the edge pixels using an averaging filter; and when two or more of the one or more difference values exceeds the threshold value, filtering the edge pixels using a filter as taught by Tan because “...the novelty of this invention is the use of this particular deblocking filter in the prediction loop to prevent the propagation of blocky artifacts.”, Tan, Col. 2, lines 33 – 34.

Varma teaches video deblocking that uses a Gaussian filter (paragraph [0005].

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the filter of Thyagarajan in view of Frishman and Tan to include a Gaussian filter as taught by Varma as “...these actions may be accomplished using a spatio-temporally varying filter.”, Varma, paragraph [0005] in reference to the objectives listed in paragraph [0005].

8. **Claim 40** is rejected under 35 U.S.C. 103(a) as being unpatentable over Thyagarajan (US 2004/0096111 A1) in view of Frishman et al. (US 2003/0044080 A1) and Thyagarajan (US 2004/0096111 A1).

Regarding **claim 40**, while Thyagarajan in view of Frishman disclose the method of claim 39, Thyagarajan in view of Frishman do not teach determining a size of the first sub-block of pixels of the two neighboring sub-blocks of pixels;

determining a sub-block variance based on pixels of the first sub-block of pixels;

determining that the first sub-block of pixels is subdivided when the sub-block variance exceeds a threshold value associated with the determined size.

Thyagarajan discloses a block size assignment using local contrast ratio method (FIG. 1) that includes

determining a size of the first block of pixels of the two neighboring blocks of pixels (FIG. 2A);

determining a block variance based on pixels of the first block of pixels (FIG. 2B, element 468);

determining that the first block of pixels is subdivided when the block variance exceeds a threshold value associated with the determined size (FIG. 2B, element 472).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the sub-blocks of Thyagarajan in view of Frishman to be blocks as taught by Thyagarajan as "...computational efficiency is desired for compact hardware implementation, which is important in many applications.", Thyagarajan, paragraph [0022].

Art Unit: 2624

9. **Claims 41 - 42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Thyagarajan (US 2004/0096111 A1) in view of Frishman et al. (US 2003/0044080 A1) and Tan et al. (US 6,188,799 B1).

Regarding **claim 41**, while Thyagarajan in view of Frishman disclose the method of claim 34, Thyagarajan in view of Frishman do not teach obtaining one or more difference values of one or more edge pixels of t

he two neighboring blocks of pixels; determining a number of the one-or more difference values that exceed a threshold value; and selecting a deblocking filter based on the number.

Tan discloses a method for removing noise in still and moving pictures (FIG. 3, element 7) that teaches

obtaining one or more difference values (“deviation c1 and c2” in element 55, FIG. 10 and difference value in element 54, FIG. 6 that involves difference values between one or more corresponding edge pixels) of one or more edge pixels (FIG. 7) of the two neighboring blocks of pixels (“Group 1” and “Group 2” in FIG. 7);

determining a number of the one-or more difference values that exceed a threshold value (FIG. 6, elements 57, 59) ; and

selecting a deblocking filter based on the number (FIG. 6, elements 58, 60).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of Thyagarajan in view of Frishman to include obtaining one or more difference values of one or more edge pixels of the two neighboring blocks of pixels; determining a number of the one-or more difference values that exceed a threshold value; and selecting a deblocking filter based on the number as taught by Tan because “...the novelty of this

invention is the use of this particular deblocking filter in the prediction loop to prevent the propagation of blocky artifacts.”, Tan, Col. 2, lines 33 – 34.

Regarding **claim 42**, while Thyagarajan in view of Frishman and Tan disclose the method of claim 42, Thyagarajan in view of Frishman and Tan do not teach wherein selecting the deblocking filter comprises: selecting a first deblocking filter when the number is equal to 1; and selecting a second deblocking filter when the number is greater than 1.

Tan discloses a method for removing noise in still and moving pictures (FIG. 3, element 7) that teaches selecting the deblocking filter comprises:

selecting a first deblocking filter (FIG. 6, element 58) when the number is equal to 1; and selecting a second deblocking filter (FIG. 6, element 60) when the number is greater than 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of Thyagarajan in view of Frishman and Tan to include wherein selecting the deblocking filter comprises: selecting a first deblocking filter when the number is equal to 1; and selecting a second deblocking filter when the number is greater than 1 as taught by Tan because “...the novelty of this invention is the use of this particular deblocking filter in the prediction loop to prevent the propagation of blocky artifacts.”, Tan, Col. 2, lines 33 – 34.

Double Patenting

10. In response to applicant’s claim amendments and remarks received on 6/20/2007, the previous double patenting rejection is withdrawn.

Allowable Subject Matter

9. **Claims 4 – 12, 16 – 21, and 37** would be allowable if rewritten to overcome the objections set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 4 – 12, 16 – 21, and 37, the prior art teaches determining whether two blocks are neighboring blocks; determining whether the two neighboring blocks are both subdivided, if it is determined that the two blocks are neighboring blocks; and performing deblocking filtering on one or more edge pixels of the two neighboring blocks, after determining that both of the two neighboring blocks are not subdivided, as well as further depth into threshold comparisons to variance values, block size assignment values, and difference values, but the prior art does not teach (i) determining whether one of the two neighboring blocks is subdivided, if both of the two neighboring blocks are not subdivided; using a first deblocking filter on one or more edge pixels of the two neighboring blocks if one of the two neighboring blocks is subdivided; and using a second deblocking filter on one or more edge pixels of the two neighboring blocks if neither of the two neighboring blocks is subdivided; and (ii) wherein the Gaussian filter comprises an N-point Gaussian filter, wherein N indicates two times a number of the one or more difference values that exceed the threshold value.

Response to Amendment

11. Applicant's arguments filed on 6/20/2007 with respect to **claims 1 – 8, 13 – 17, 31 – 33, and 34 – 42** have been respectfully and fully considered, but they are not found persuasive.

Summary of Remarks regarding claims 1, 13, 31, and 34

Applicant argues that none of the cited references disclose or suggest any element in accordance with “performing deblocking filtering on one or more edge pixels of the two neighboring blocks, after determining that both of the two neighboring blocks are not subdivided.”, and hence placing the independent claims 1 (@ response page 14), 13 (@ response page 15), 31 (@ response page 15), and 34 (@ response page 17) in condition for allowance.

Examiner’s Response

Through the amended and more restrictive change in logic from what was before a conditional statement “if it is determined that both of the two neighboring blocks are not subdivided” (thus allowing the possibility that the determination was not absolutely necessary, as Thyagarajan in view of Lee anticipated) to a definite “after determining that both of the two neighboring blocks are not subdivided” altered the scope of the claim (thus invoking a necessary determination step from which the deblocking filter was dependent upon), the prior art of Thyagarajan in view of Frishman as shown above anticipates the independent claims.

In particular, Frishman discloses a method for reducing blocking artifacts (FIG. 3, Frishman) that teaches performing deblocking filtering on one or more edge pixels of the two neighboring blocks, after determining that both of the two neighboring blocks are not of a particular classification (“Non Blocky” or “Blocky”). It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of processing images compressed using block based compression of Thyagarajan to include performing deblocking filtering on one or more edge pixels of the two neighboring blocks, after determining that both of

Art Unit: 2624

the two neighboring blocks are not of a particular classification as taught by Frishman , and it would have been obvious to one of ordinary skill in the art at the time the invention was made for the classification of Thyagarajan in view of Frishman to be “subdividing determination/classification” as already calculated by Thyagarajan as it “...provides a robust and picture-content dependent solution for removing the blocking artifact without reducing the quality or sharpness of the processed picture, and may be implemented efficiently in software and in hardware.”, Frishman, paragraph [0002].

Summary of Remarks regarding claims 2 – 12, 14 – 21, 32 – 33, and 35 - 42

Applicant argues because the prior art does not disclose or suggest each and every element of the independent claims 1, 13, and 31, all respective dependent claims 2 – 12 (@ response page 14), 14 – 21 (@ response page 15), 32 – 33 (@ response page 15), and 35 – 42 (@ response page 17) are in condition for allowance at least by virtue of their dependency.

Examiner’s Response

However, it has been shown that Thyagarajan in view of Frishman anticipates independent claims 1, 13, and 31, and thus all respective dependent claims 2 – 12, 14 – 21, 32 – 33, 35 – 42 are not in condition for allowance at least by virtue of their dependency; and further noting that claims 2 - 3, 13 – 15, 32 – 33, 35 – 36, and 38 – 42 by prior art anticipation as well.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David P. Rashid whose telephone number is (571) 270-1578. The examiner can normally be reached Monday - Friday 8:30 - 17:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 2624

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David P. Rashid/
Examiner, Art Unit 2624

David P Rashid
Examiner
Art Unit 2624

/Brian P. Werner/
Supervisory Patent Examiner (SPE), Art Unit 2624